



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-9553; Directorate Identifier 2016-NE-29-AD]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Corporation Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for certain Rolls-Royce Corporation (RRC) AE 3007C and 3007C1 model turbofan engines. This proposed AD was prompted by analysis and by cracks found in the high-pressure turbine (HPT) wheel during an inspection. This proposed AD would require replacement of the affected HPT wheels at new, lower life limits. We are proposing this AD to correct the unsafe condition on these products.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Rolls-Royce Corporation, 450 South Meridian Street, Mail Code NB-01-06, Indianapolis, IN 46225; phone: 317-230-3774; email: indy.pubs.services@rolls-royce.com; Internet: www.rolls-royce.com. You may view this service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-9553; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Kyri Zaroyiannis, Aerospace Engineer, Chicago Aircraft Certification Office, Small Airplane Directorate, FAA, 2300 E. Devon Ave., Des Plaines, IL 60018; phone: 847-294-7836; fax: 847-294-7834; email: kyri.zaroyiannis@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2016-9553; Directorate Identifier 2016-NE-29-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all

comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

We learned from RRC that cracks were found in the HPT wheel during an inspection. Investigation determined that, for certain part number (P/N) HPT wheels, incomplete shot peening in the internal shaft fillet resulted in reduced fatigue life. For other affected P/N HPT wheels, the polishing wheel used in the manufacturing process created an unfavorable surface finish, known as “Black Wheel Polish,” that could lead to crack initiation. We are, therefore, lowering the life limits for these affected HPT wheels. These conditions, if not corrected, could result in uncontained failure of the HPT wheels, damage to the engine, and damage to the airplane.

Related Service Information under 1 CFR part 51

We reviewed RRC Alert Service Bulletin (ASB) AE 3007C-A-72-318, Revision 2, dated September 23, 2016. The ASB provides updated life limits for the affected HPT wheels. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

FAA’s Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would require replacement of the affected HPT wheels at new, lower life limits.

Costs of Compliance

We estimate that this proposed AD affects 307 engines installed on airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Replacement of HPT wheel (P/N 23062373, 23065891, or 23070664) at reduced life	0 work-hours x \$85 per hour = \$0	\$39,171 (pro-rated cost of part)	\$39,171	\$3,838,758
Replacement of HPT wheel (P/N 23063462, 23065892, 23069116, 23069592, or 23074643) at reduced life	0 work-hours x \$85 per hour = \$0	\$21,911 (pro-rated cost of part)	\$21,911	\$4,579,399

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

Roll-Royce Corporation (Type Certificate previously held by Allison Engine Company): Docket No. FAA-2016-9553; Directorate Identifier 2016-NE-29-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

(1) This AD applies to Rolls-Royce Corporation (RRC) AE 3007C and 3007C1 turbofan engines with 1st stage high-pressure turbine (HPT) wheels, part number (P/N) 23062373, 23065891, or 23070664; or with 2nd stage HPT wheels, P/N 23063462, 23065892, 23069116, 23069592 (except those serial numbers (S/Ns) noted in paragraph (c)(2) of this AD), or 23074643, installed.

(2) This AD does not apply to RRC AE 3007C and 3007C1 turbofan engines with 2nd stage HPT wheels, P/N 23069592, with S/Ns listed in Table 6 of RRC Alert Service Bulletin (ASB) AE 3007C-A-72-318, Revision 2, dated September 23, 2016, installed.

(d) Subject

Joint Aircraft System Component (JASC) Code 7250, Turbine/turboprop Engine, Turbine Section.

(e) Unsafe Condition

This AD was prompted by analysis and by cracks found in the HPT wheel during an inspection. We are issuing this AD to prevent uncontained failure of the HPT wheels, damage to the engine, and damage to the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(1) For all RRC AE 3007C or C1 engines with an installed 1st stage HPT wheel, P/N 23062373, 23065891, or 23070664, or 2nd stage HPT wheel, P/N 23063462, 23065892, 23069116, 23069592 (except those S/Ns excluded by paragraph (c)(2) of this AD) or 23074643, after the effective date of this AD, remove the affected wheels before exceeding the new life limits identified in paragraph C., Table 1 of RRC ASB AE 3007C-A-72-318, Revision 2, dated September 23, 2016.

(2) After the effective date of this AD, do not return to service any engine with an HPT turbine wheel, with an affected P/N and an S/N, with a wheel life that exceeds the new life limits identified in paragraph C., Table 1 of RRC ASB AE 3007C-A-72-318, Revision 2, dated September 23, 2016.

(g) Alternative Methods of Compliance (AMOCs)

The Manager, Chicago Aircraft Certification Office, FAA, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request.

(h) Related Information

(1) For more information about this AD, contact Kyri Zaroyiannis, Aerospace Engineer, Chicago Aircraft Certification Office, Small Airplane Directorate, FAA, 2300 E. Devon Ave., Des Plaines, IL 60018; phone: 847-294-7836; fax: 847-294-7834; email: kyri.zaroyiannis@faa.gov.

(2) For RRC service information identified in this AD, contact Rolls-Royce Corporation, 450 South Meridian Street, Mail Code NB-01-06, Indianapolis, IN 46225;

phone: 317-230-3774; email: indy.pubs.services@rolls-royce.com; Internet: www.rolls-royce.com.

(3) You may view this service information at FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on January 27, 2017.

Colleen M. D'Alessandro,
Manager, Engine & Propeller Directorate,
Aircraft Certification Service.
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